CONNECTICUT CENTER
FOR PATIENT SAFETY
QUALITY HEALTHCARE IS A RIGHT.

Good afternoon Senator Handley and Representative Sayers and members of the Public Health Committee. My name is Jean Rexford and I serve as Executive Director of the CT Center for Patient Safety.

I am here today to ask that you strengthen bill number 579. Hospital-acquired infections caused by MRSA are on the rise. In 1974, only 2% of staph infections in health care settings were caused by MRSA; by 1995, the percentage was 22%; and by 2004, MRSA caused nearly 63% of all staph infections in health care settings. Allowing hospitals to move slowly to address this growing problem is unacceptable. They have had years to take action. I would like to see screening be required in their plan.

There is a new test that is cost effective. For as little as $42 per individual, the hospitals can save lives and money. Stamford Hospital has already begun to screen; clearly a business case can be made.

Community MRSA is a reportable condition to the Department of Public Health. I would like to see this legislation amended to include Hospital MRSA in those numbers. I believe that those numbers will be the impetus apparently needed to change their way of doing business. For years hospitals accepted these infections. But over those same years, MRSA has spread and spread rapidly. Recently Dr. Troyen Brennan, Chief Medical Officer at Aetna, told a business reporter that MRSA was widespread throughout the hospital. It is not acceptable. Hospitals that screen greatly reduce the rate of infection.

The CT Center for Patient Safety introduced legislation before this committee two years ago. And it took those two years to finally work out that hospitals would report central line infections in the ICU. That reporting began in January. But that is not enough. Wouldn't it be far better to stop this deadly epidemic before the ICU? We need and can do more. Some patients are moved to the ICU after they have gotten MRSA in other areas of the hospital. The test for MRSA, recently approved by the FDA, can take as little as 72 minutes and can cost as little as $42 per individual. This is nothing compared to the human and financial costs of acquiring an infection.

Each time I do a radio or TV interview, I get the calls from people who have had MRSA or whose family member had it. These calls do not fall on deaf ears. In one case for one hospital I even called the DPH and asked for an investigation. How can we as a state know what we know and not require a lot more? Infections were once the dirty little secret of the hospitals. They no longer are and they are the reason we all joke about how dangerous it is to go into one.

I urge you to pass strengthened legislation. We are all health care consumers. Think about what each one of us wants for our families and ourselves. I am an activist, not a doctor so I have attached testimony submitted in Maryland by Dr. Jarvis. This clearly outlines what needs to be done and the extent of the problem and screening as a solution.

Written Testimony of Dr. William Jarvis
Senate Bill 837
March 14, 2007

Senator Thomas Mac Middleton
Chairman, Senate Finance Committee
11 Bladen Street
Annapolis, Maryland 21401-1991

Dear Senator Middleton and Senate Finance Committee Members:

It is my understanding that you are in the process of considering legislation to require implementation of the Society of Healthcare Epidemiology of America (SHEA) guideline to control healthcare-associated infections (HAIs) due to methicillin-resistant Staphylococcus aureus (MRSA) or vancomycin-resistant Enterococcus (VRE) in all Maryland healthcare facilities. I would like to strongly support this legislation as the only way that healthcare facilities will implement the necessary aggressive control measures needed to reduce or eradicate the many, many infections caused be these prevalent pathogens. The current state of hospital-acquired infections caused by MRSA and VRE is a public heath disaster. More people are infected and die of MRSA each month in hospitals in the United States than have been infected or die from Severe Acute Respiratory Syndrome (SARS), Anthrax, bioterrorism agents, Avian influenza combined. Yet, we spend billions on the later and do virtually nothing to control MRSA and VRE in our hospitals. MRSA infections are costing our healthcare system millions if not billions of dollars each year. Each MRSA bloodstream infection is estimated to cost between $25,000 and $35,000. Many MRSA surgical site infections cost even more; for some joint/hip procedures, each MRSA infection is estimated to cost over $50,000. Thus, these infections are costing our hospitals, the Centers for Medicare and Medicaid Services, our States, insurers and the public enormous sums of money (and this does not even take into account the enormous amounts spent on medico-legal costs and settlements). You are congratulated for taking this important prevention approach. Such legislation will save many, many lives, reduce the burden of these infections on Maryland hospitals, reduce healthcare costs, and serve as model legislation for other States in our Country.

Over the past two decades, first MRSA and then VRE have been introduced or emerged and the spread and become endemic in many, if not most, healthcare facilities in the United States. In fact, hospitals in Maryland served as a major source for the emergence and spread of VRE in the mid-Atlantic region in the early 1990s, because aggressive steps were not taken to control its spread when initially detected in one of its hospitals. As a result, VRE became endemic in many Baltimore area hospitals and then spread to other hospitals in Maryland and then across the United States. Both MRSA and VRE colonization and infection are major causes of morbidity and mortality and are costing our healthcare systems millions of dollars each year. These pathogens are continuing to spread out of control in U.S. healthcare facilities and are both more deadly and more costly than infections caused by strains of Staphylococcus aureus or Enterococcus that

are susceptible to antimicrobials. The SHEA guideline gives a brief history of the pathogens and the measures needed to prevent or control their transmission; a copy of the guideline can be found at the SHEA website (www.shea-online.org) under "Publications" and the subheading "Position Papers" in the menu at the left. The continued emergence and spread of MRSA and VRE have led to the emergence of vancomycin-intermediate resistant S. aureus in the late 1990s and in the 2000s of true vancomycin-resistant S. aureus. We are at the tipping point with regard to MRSA. MRSA accounts for 60-80% of the S. aureus healthcare-associated infections. Recent Centers for Disease Control and Prevention (CDC) data show that in the last decade (1993-2002), the number of MRSA infections has tripled and the proportion of S. aureus infections caused by MRSA has doubled in CDC National Nosocomial Infections Surveillance (NNIS) system hospital intensive care units! These data are from hospitals that are very interested in infection control and probably have better infection control programs than the average U.S. hospital. In addition, CDC NNIS data show that MRSA as a cause of surgical site infections is skyrocketing! Clearly, the current CDC recommendations for MRSA control are not working. This is why it is more critical now than ever to implement the SHEA guideline recommendation statewide. In one estimate, over 125,969 MRSA infections occur each year in U.S. hospitals. If we assume that each infection costs just $20,000 (lower than any published estimates), then these infections cost us nearly $25,200,000,000 each year! The recent emergence of community onset MRSA (in patients with no healthcare exposures), caused by a different strain of MRSA that is more invasive, is another reason why action is needed now. This community MRSA strain now is being introduced and spread in our hospitals and the hospital MRSA strain is spreading in the community. The hospitals are the major source of MRSA and it is critical for the public's health that MRSA be controlled now, while we still can.

The SHEA guideline recommends prevention and control measures that have been documented to work in controlling the transmission of a wide variety of pathogens, including smallpox, SARS, mycobacterium tuberculosis, MRSA and VRE. The three simple steps to control the transmission of these and other pathogens include, identifying contagious patients, placing these patients in isolation precautions (i.e. the CDC's contact isolation for MRSA and VRE), and hand hygiene. Currently, although this approach has been recommended by the SHEA and the CDC, many if not most healthcare facilities rely exclusively on clinical cultures to detect MRSA or VRE colonized or infected patients, despite the fact that clinical cultures have been shown in numerous studies to detect <15%-30% of such patients. Active surveillance cultures are necessary if the entire reservoir of MRSA or VRE colonized or infected patients are to be detected. Second, such patients need to be placed in appropriate isolation. Currently, some healthcare facilities do not even do this when they detect MRSA-or VRE-infected patients through clinical cultures. Third, healthcare workers need to perform hand hygiene before and after contact with such colonized or infected patients or the contaminate environment around such patients. Current studies indicate that healthcare worker compliance with hand hygiene averages approximately 30%-40%. Sustained improved hand hygiene compliance is not a realistic expectation (it has not happened in my >25 years in infection control). Thus, if we are to prevent further spread of these pathogens, legislation to mandate the SHEA approach is necessary.

MRSA and VRE are spread by either colonized or infected patients. Thus, it is essential to find asymptomatically colonized patients. To do this, one must use microbiological tests, usually a culture. For MRSA, the SHEA guideline recommends doing cultures (i.e., swabs) of the nose and areas of broken skin, if they exist. For VRE, the SHEA guideline recommends cultures of the peri-rectal area or feces. Routine microbiologic cultures (which take 48-72 hours to get an answer) can be used. But, recent advances in microbiologic methods, including the use of Chromogenic media (MRSA turn a mauve color as they grow and can be detected in 18-24 hrs in most cases) as used as Johns Hopkins Hospital, or even more rapid methods, such as polymerase chain reaction (PCR), can detect MRSA in as little as 4 hours! Thus, even more rapid methods are available to identify MRSA-colonized patients, who serve as the unrecognized source of much transmission, and place such patients in isolation and prevent transmission.

Included in the SHEA guideline are extensive reports of the efficacy of this proactive approach in controlling hospital-acquired infections caused by MRSA. This has been accomplished by health and hospital authorities in Finland, Denmark and the Netherlands, where they have been able to reduce or maintain MRSA at very low levels (<5% of bloodstream infections). The SHEA guideline sites approximately 45 studies reporting significantly improved MRSA or VRE control with this approach in many countries including the United States (with some of these being from Maryland). Hospitals in Western Australia have used this approach as well to control MRSA and VRE to very low levels, unlike hospitals in Eastern Australia, which took a different approach. Over an additional 20-30 studies have been reported at the annual SHEA, Association for Professionals in Infection Control (APIC), or other infectious disease society meetings over the past 3 years documenting the success of the SHEA approach in large teaching hospitals, smaller community hospitals, during epidemics, during endemic situations, and in hospitals in the United States or throughout the world. In all these presentations, the rates of MRSA had been increasing in the 1-2 years before the intervention and decreased significantly after introduction of the intervention. These data illustrate that it is the full implementation of this infection control method used, not the country, system of payment for healthcare, or type of facility that explains the success in controlling transmission of these pathogens. This approach has been documented to controlling MRSA or VRE transmission in a variety of U.S. hospitals, and for VRE in an entire region in which all acute care and long-term care facilities collaborated in controlling VRE. In fact, MRSA control measures in hospitals have bee documented to be cost-effective even if only 14% of MRSA infections are prevented. None of the published MRSA interventions using the SHEA Guideline approach has had such a limited impact; most have reduced MRSA by 40%-60%. Thus, these measures are cost-effective and will save our healthcare systems enormous amounts of money that can be used on other critical healthcare needs.

Despite the fact that as long ago as 1983, the CDC isolation guideline recommended that all patients with antibiotic-resistant pathogens, such as MRSA and VRE, whether colonized or infected, should be identified and placed in contact isolation precautions, most facilities have not complied with this recommendation and these pathogens have

continued to be transmitted, become endemic in most hospitals, and the incidence, as reported by the CDC has risen for MRSA from 0 to >60% of S. aureus hospital-acquired infections and for VRE from 0 to >25% in CDC NNIS system ICU patients. This occurred because of the major failure of most hospitals and other healthcare facilities to fully implement the above CDC recommendations. Over 20 years ago, those at the University of Virginia documented the continued spread of MRSA if only those patients detected by clinical culture were placed in isolation. In a study published in 1982 in the Annals of Internal Medicine they documented failure to control epidemic spread of MRSA for 3 years (1978-1980). When they began active surveillance cultures to dtect the unrecognized reservoir of MRSA-colonized patients (the SHEA recommended approach), for the first time in 3 years, the rate of MRSA started going down. After 1.5 years of this approach, MRSA was eradicated from the hospital. This was done without a major program to control antimicrobial use or to improve hand hygiene. Thus, it is not surprising that the failure to fully implement the CDC recommendation or the more recent SHEA guideline recommendations has resulted in the increasing incidence/prevalence of these pathogens. In the past decade, the number of MRSA infections at CDC NNIS ICUs has tripled. This enormous increase in MRSA has led to enormous increases in the use of vancomycin (and other expensive antibiotics) in the United States. The increase in vancomycin use led first to the emergence of VRE, and more recently the even more disconcerting vancomycin-intermediate S. aureus (VISA) or vancomycin-resistant S. aureus (VRSA).

Some have argued that the SHEA guideline approach is too costly. In fact, all the published studies evaluating the efficacy of this approach have concluded that preventing spread of MRSA and VRE by active detection using active surveillance cultures and isolation of colonized patients actually ends up saving money (after an initial investment) by preventing MRSA and VRE infections, which are more costly. Some of the arguments used by those who say this approach should not be implemented are: 1) that all studies proving this approach are poorly designed; 2) that the SHEA approach has not been proven by randomized controlled trial; or 3) that the SHEA approach recommends 5 steps (really the 3 of the 5, active surveillance cultures, contact isolation, and hand hygiene are the most critical; the others, antibiotic controls and eradication of colonization are less important in the United States today where we have high MRSA-colonization and-infection rates) and that the independent impact of each of the 3 or 5 recommendations has not been fully evaluated. My response to these criticisms is that I was at CDC for 23 years and was responsible for many of the previous CDC Hospital Infection Control Guidelines. Many if not most of these CDC guideline recommendations were based on far fewer data and a smaller number of similarly designed studies than is the case with the SHEA guideline recommendations. What is the likelihood that through chance alone all 70-90 studies that have evaluated the SHEA guideline approach have found it to be effective? If the results were due to chance alone because of faulty study design wouldn't one expect to have the results fall out 50% for and 50% against or failure of the recommendations? In most of the CDC Guidelines, the category 1 A (strongest) recommendations are not supported by randomized controlled studies. In addition, in virtually all the CDC hospital infection control guidelines, there are multiple recommendations that are 1 A or 1 B; in none of them has the individual importance of

each of the recommendations been evaluated and established independent of the other recommendations. For example, I helped to write the 1994 CDC Tuberculosis Guideline for hospitals. We made a large number of recommendations (negative pressure rooms, respirators, etc.) A group of recommendations were made; individual impact of each of the recommendations has never and never will be evaluated and established. Nevertheless, virtually all U.S. hospitals have implemented this "package" of recommendations. Why are those who do not want control of MRSA or VRE requiring more stringent proof of the SHEA Guideline recommendations than have ever been required of the CDC Guidelines?

As illustrated above, dependence upon healthcare facilities in Maryland or elsewhere in the United States to voluntarily fully implement the SHEA Guideline recommendations is doomed to failure in many if not most hospitals. Although many infection control personnel would like to fully implement such a prevention program, there is insufficient administrative support (personnel or funding) to do this. Legislation or regulation requiring implementation of such a prevention program or financial penalties for not doing this is necessary, if we are to improve patient safety and outcomes by preventing the spread of MRSA or VRE. I strongly urge you to support and pas such legislation for the state of Maryland. This would be a major step in leading other States in the United States to place patient safety and improved outcomes above convenience. The potential for tremendous cost savings as this prevention program moves forward would be enormous.

A great deal of attention has been placed on the recent emergence of community acquired MRSA (CA-MRSA). First, much of the MRSA in some communities turns out to be healthcare-associated MRSA (unless an interview is done at the time of the culture, one really does not know that the MRSA was not acquired during a previous hospital admission and just becoming apparent). The overall prevalence of MRSA of any type in the community is approximately 1%-2% (CDC survey data). This sharply contrasts with Healthcare-associated MRSA that accounts for >60% of S aureus hospital-acquired infections in U.S. hospitals. Thus the burden of MRSA hospital-acquired infections is much greater than CA-MRSA. Another reason to identify patients colonized with MRSA is that through the use of active surveillance cultures of high-risk patients, those with CA-MRSA at the time of hospital admission also could be identified and isolated. CA-MRSA has been documented to be transmitted in healthcare settings after patients are admitted from the community (as healthcare-associated MRSA is transmitted to healthcare workers, and in the community to their families or to infected/colonized patient close contacts). The continued emergence of CA- and hospital-acquired MRSA will lead to an even greater public health disaster.

Also, recently many states have been pressured by the Consumer's Union to legislate public reporting of hospital-acquired infections. The CDC's NNIS hospitals have documented decreased hospital-acquired infection rates over the past decade, because this system is confidential and uses standardized definitions and methods. When such hospital-acquired infection reporting is not confidential or standardized definitions are not used, hospitals will game the system to show lower infection rates (it should be

remembered that hospital-acquired infection reporting is somewhat paradoxical, the less surveillance one has for such infections, the lower the rate will look and vice versa-at least initially). Such games cannot be played with MRSA. Clinicians must order cultures to know how to treat their patients. When they do, those culture results are retained in the microbiology department information system. Thus, such data are readily available at all healthcare facilities. A better way to impact patient outcomes (the theoretical goal of public reporting) would be to require use of the SHEA Guideline to control MRSA and VRE and require reporting of MRSA and VRE hospital-acquired infection rates to document that these epidemic pathogens are being controlled. If the MRSA rates remain high or rise further, the infection control department is not doing a good job. If the MRSA rates are low or decreasing, then an effective infection control program exists. There would not be a way to game the system and such reporting would have a direct impact on improving patient outcomes. Maryland would be a leader in hospital-acquired infection prevention programs and a model to the rest of the nation.

My qualifications for supporting this legislation to require implementation of the SHEA Guideline recommendations for controlling MRSA and VRE (and would have an impact on other antimicrobial-resistant pathogens as well) include my training in pediatrics and pediatric infectious diseases; 23 years at the CDC, including as Acting Director of the Hospital Infections Program (now the Division of Healthcare Quality Promotion), and Past President of SHEA, current President of the APIC Research Foundation, and current Editor of SHEA's journal *Infection Control and Hospital Epidemiology*. In addition, I have over 350 publications and am the current Editor of the book Hospital Infections. It is as a result of these experiences that I have become convinced that "voluntary" control of MRSA or VRE will not occur. It is only through the use of State or Federal legislation or regulation that we can improve our patient outcomes and reduce these devastating infections. I congratulate you on taking a bold and progressive stand against MRSA and VRE. I strongly support such legislation and would be happy to support your efforts in any way that I can.

Sincerely yours,

William R. Jarvis, MD
President, Jason and Jarvis Associates